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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,520	03/22/2004	Stavros Tsokonas	2003P04174US-01	9817

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EXAMINER	
TRIEU, THAI BA	
ART UNIT	**PAPER NUMBER**
3748	

DATE MAILED: 10/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/805,520	TSOKONAS, STAVROS	
	Examiner	Art Unit	
	Thai-Ba Trieu	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-15,17 and 20-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-15,17 and 20-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office action is in response to the Amendment filed on August 11, 2005. Applicant's cooperation in amending the claims to overcome the claim objections relating to informalities is also appreciated. Claims 2, 20, and 22-30 were amended; claims 1, 16, and 18-19 were cancelled.

Applicant's arguments, see Pages 10-13, filed August 11, 2005, with respect to the rejection(s)of claim(s) 17 and 30 under 35 U.S.C. §112, second paragraph, and the rejection(s)of claim(s) 2-15 and 17 under 35 U.S.C. § 102(b) and claims 20-30 under 35 U.S.C. § 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is set forth below.

Notice of Reference Cited

The U.S. Patent Number 3,260,504 to Mojonnier et al, unlisted on the Form PTO-892 mailed on March 11, 2005, is being placed on a new Notice Reference cited attached hereto.

Claim Objections

Claim 2 is objected to because of the following informalities:

- Line 2, ***"though"*** before ***"first seat"*** should be replaced by **– through –** (for correcting typo error).

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2-10, 17, 20-21 and 24-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toyoda (Patent Number JP01-219319 A), in view of Everingham (Patent Number 5,184,773).

Regarding claims 2-10, 17, 20-21 and 24, Todoya discloses a fluid flow controller (60) for a turbocharger on an internal combustion engine, the turbocharger (6,8) boosting density of atmospheric air being supplied to the internal combustion engine (2), and a wastegate (38) setting a maximum boost level, the fluid flow controller comprising:

a body defining a chamber (within 60), the body including:

an inlet port (via 61) providing fluid communication between the turbocharger (from compressor 6 to 61) and the chamber (within 60);

a first outlet port (via line 56);

a second outlet port (via 58) providing fluid communication between the chamber and the atmosphere (from 58 to upstream of compressor 6), a second fluid flow path passing air from the turbocharger (6, 8) through the inlet port (via 61), through the

chamber and out the second outlet port to the atmosphere (from58 to upstream of compressor 6) (See Figures 1-2); and

an electromagnetic actuator (Not Numbered) mounted on the body (See Figures 1-2).

However Toyoda fails to disclose a valve with two outlet ports, and the movement configurations of the valve, and the operation of the electromagnetic actuator and the resilient element biasing the valve.

Everingham teaches that it is conventional in the valve art, to utilize a valve having two outlet ports (14, 18); wherein one of the two ports (14, 18) providing fluid communication between the chamber and the wastegate, a first fluid flow path passing air from the turbocharger through the inlet port (via 16), through the chamber and out the first outlet port (via port to 14,16) to the wastegate; and to dispose the valve stem (62) and the valve head (60) in the chamber, the valve being movable with respect to the body between a first configuration, a second configuration, and a plurality of intermediate configurations:

the first configuration substantially occluding the second fluid flow path and permitting generally unrestricted fluid flow along the first fluid flow path;

the second configuration substantially occluding the first fluid flow path and permitting generally unrestricted fluid flow along the second fluid flow path; and

the plurality of intermediate configurations permitting proportional fluid flow along the first and second fluid flow paths;

wherein the body comprises first and second seats (40,42), the first fluid flow path passes through the first seat when the head sealingly engages the second seat in the first configuration of the valve, and the second fluid flow path passes through the second seat when the head sealingly engages the first seat in the second configuration of the valve;

wherein the first seat (40) defines a first aperture having a first seat diameter, the second seat (42) defines a second aperture having a second seat diameter, the first fluid flow path passes though the first aperture in the first configuration of the valve, and the second fluid flow path passes through the second aperture in the second configuration of the valve (See Figure 1, Column 2, lines 10-68, Columns 3-4, lines 1-68, and Column 5, lines 1-11);

wherein the first and second seats (40, 42) are centered about an axis, and the first seat (40) is spaced along the axis with respect to the second seat (42) (See Figure 1);

wherein the valve moves along the axis and the head is disposed along the axis between the first and second seats (40, 42) (See Figure 1);

wherein the valve (60) comprises a stem (62) that is fixed to the head and projects through the body (See Figure1);

an actuator (64, 86) operably coupled to the stem, the actuator moves the head and stem between the first and second configurations of the valve (See Figure 1, Column 4, lines 20-37);

wherein the actuator comprises an electromagnetic actuator (100) mounted on the body, the electromagnetic actuator reciprocating along the axis between the first and second configurations of the valve (See Figure 1, Column 4, lines 1-8); and a resilient element (76) biasing the stem (62) toward the first configuration of the valve (60) (See Figure 1, Column 4, lines 45-68, and Column 5, lines 1-11); wherein the actuator comprises a resilient element (76) biasing the stem (62) toward the first configuration of the valve (60) (See Figure 1, Column 4, lines 45-55);

wherein the head reciprocates along the axis between the first and second configurations of the valve (See Column 4, lines 56-68, and Column 5, lines 1-11).

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have disposed the valve head in the chamber and applied the movement configurations of the valve and an electromagnetic actuator, as taught by Everingham, to improve the efficiency of the Toyoda turbocharged internal combustion engine, since the use thereof would have controlled/restricted the fluid flow communicating with the wastegate as well as the fluid flow recirculating to the upstream of the turbocharger or atmosphere.

Note that the limitation in claim 17 is considered as functional language. Everingham discloses the same structural components as those in the instant invention, which are capable of performing the same functions as being disclosed in claim 17.

Regarding claims 25-27, Toyoda discloses a system of boosting atmospheric air density being supplied to an internal combustion engine, the internal combustion engine (2) including an intake manifold (via 10, 10-2) providing the air to a combustion cylinder and including an exhaust manifold (12, 12-2) providing combustion products from the combustion cylinder, the system comprising:

a turbocharger (6,8) including a turbine (8) and a compressor (6) connected for rotation with the turbine, the turbine (8) being in fluid communication with the exhaust manifold (12, 12-2), and the compressor (6) being in fluid communication with the intake manifold (10, 10-2) (See Figures 1-2);

a wastegate (38) including a regulating portion (40, 50, 52) and a control portion (40, 50, 52), the regulating portion (40, 50, 52) being in fluid communication between the compressor and the atmosphere, and the control portion being operatively coupled to the regulating portion and receiving a fluid control signal; and

a fluid flow controller (60) supplying the fluid control signal to the wastegate, the fluid flow controller including:

a body defining a chamber (within 60), the body including:

an inlet port (via 61) providing fluid communication between the turbocharger (from compressor 6 to 61) and the chamber (within 60);

a first outlet port (via line 56);

a second outlet port (via 58) providing fluid communication between the chamber and the atmosphere (from 58 to upstream of compressor 6), a second fluid flow path passing air from the turbocharger (6, 8) through the inlet port (via 61), through the

chamber and out the second outlet port to the atmosphere (from58 to upstream of compressor 6) (See Figures 1-2);

an electromagnetic actuator (Not Numbered) mounted on the body (See Figures 1-2); and

an electronic control unit (62) (See Figures 1-2).

However Toyoda fails to disclose a valve with two outlet ports, and the movement configurations of the valve, and the operation of the electromagnetic actuator and the resilient element biasing the valve.

Everingham teaches that it is conventional in the valve art, to utilize a valve having two outlet ports (14, 18); wherein one of the two ports (14, 18) providing fluid communication between the chamber and the wastegate, a first fluid flow path passing air from the turbocharger through the inlet port (via 16), through the chamber and out the first outlet port (via port to 14,16) to the wastegate; and to dispose the valve head (60) in the chamber, the valve being movable with respect to the body between a first configuration, a second configuration, and a plurality of intermediate configurations:

the first configuration substantially occluding the second fluid flow path and permitting generally unrestricted fluid flow along the first fluid flow path;

the second configuration substantially occluding the first fluid flow path and permitting generally unrestricted fluid flow along the second fluid flow path; and

the plurality of intermediate configurations permitting proportional fluid flow along the first and second fluid flow paths (See Figure 1, Column 2, lines 10-68, Columns 3-4, lines 1-68, and Column 5, lines 1-11); and

wherein the actuator comprises an electromagnetic actuator (100) mounted on the body, the electromagnetic actuator reciprocating along the axis between the first and second configurations of the valve (See Figure 1, Column 4, lines 1-8) (See Figures 1-2, Column 4, lines 45-68, and Column 5, lines 1-11).

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have disposed the valve head in the chamber and applied the movement configurations of the valve and an electromagnetic actuator, as taught by Everingham, to improve the efficiency of the Toyoda turbocharged internal combustion engine.

Regarding claims 28-30, the method as claimed would be inherent during the normal use and operation of the modified Toyoda device as disclosed in claims 20-21 and 25 set forth above.

Claims 11-15 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toyoda (Patent Number JP 01-219319 A), in view of Everingham (Patent Number 5,184,773), and further in view of Doherty, Jr. (Patent Number 4,026,464).

Regarding claims 11-15, the modified Toyoda device discloses the invention as recited above; however, fails to disclose the structural details of the valve head.

Doherty Jr. teaches that it is conventional in the valve art, to utilize the head comprising:

a first portion (60,62) disposed at an axial end (66) of the valve;

a second portion (56,58) disposed along the axis between the first portion (60,62) and the stem (54); and

a central portion (64) disposed along the axis between the first and second portions (60,62; 56,58) (See Figures 2-4);

wherein the central portion (64) has a cross- section area transverse to the axis, and the cross-section area is greater than the first area of the first aperture of the first seat and is greater than the second area of the second aperture of the second seat (See Figures 2-4);

wherein the central portion (64) has a diameter that is greater than a diameter of the first aperture and greater than a diameter of the second aperture (See Figures 2-4);

wherein the first portion (60,62) tapers along the axis to a minimum first portion diameter that is less than the diameter of the first aperture, and the second portion (56,58) tapers along the axis to a minimum second portion diameter that is less than the diameter of the second aperture (See Figures 2-4);

wherein a diameter of the stem (54) is no greater than the minimum second portion diameter (See Figures 2-4).

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized the structural details of the valve head, as taught by Doherty Jr., to improve the performance efficiency of the modified Toyoda device.

Regarding claims 22-23, the modified Toyoda device discloses the invention as recited above; however, fails to disclose the structural details of the valve head.

Doherty Jr. teaches that it is conventional in the valve art, to utilize the head comprising:

a first portion (60,62) disposed at an axial end (66) of the valve;

a second portion (56,58) disposed along the axis between the first portion (60,62) and the stem (54); and

a central portion (64) disposed along the axis between the first and second portions (60,62; 56,58) (See Figures 2-4);

wherein the central portion (64) has a diameter that is greater than a diameter of the first seat diameter and greater than the second seat (See Figures 2-4); the first portion (60,62) tapers along the axis to a minimum first portion diameter that is less than the first seat diameter, and the second portion (56,58) tapers along the axis to a minimum second portion diameter that is less than the second seat diameter (See Figures 2-4).

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized the structural details of the valve head, as taught by Doherty Jr., to improve the performance efficiency of the modified Toyoda device.

Response to Arguments

Applicant's arguments with respect to claims 2-15, 17, and 20-30 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Iwamoto et al. (US Patent Number 4,437,311) discloses an apparatus for controlling the flow of exhaust gas in a turbocharged internal combustion engine.

- Kawakami (US Patent Number 5,271,228) discloses a turbocharged engine.

- Lashbrook (US Patent Number 4,817,387) discloses a turbocharger control device.

- Toyoda (Patent Number JP 02-227521 A) discloses a waste-gate pressure control device.

- Toyoda (Patent Number JP 02-227525 A) discloses air-fuel ratio control device of an internal combustion engine.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai-Ba Trieu whose telephone number is (571) 272-4867. The examiner can normally be reached on Monday - Thursday (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TTB
March 07, 2005

Thai-Ba Trieu
Primary Examiner
Art Unit 3748